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EXAMINER

HEITBRINK, JILL LYNNE

ART UNIT

PAPER NUMBER

1732

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/601,955

Applicant(s)

SPEIGHT, RUSSELL GORDON

Examiner

Jill L. Heitbrink

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,33-37,57,59,60 is/are pending in the application.
4a) Of the above claim(s) 33-35,57 and 59 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1,36,37,60 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Election/Restrictions

1. Claims 33, 34, 35, 57 and 59 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on April 1, 2003.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 36, 37 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hold et al. Pat. No. 4,311,446 taken together with Hillman et al. Pat. No. 5,470,218.

4. Hold et al. disclose the use of a computer to change the set points (see col. 5, lines 23-27), i.e. set-up process, of an injection molding machine. Hold et al. disclose manufacturing parts with the injection molding machine and inspecting the parts for defects, col. 5, lines 16-20. Then, the computer determines the necessary changes to the set points of the various control variables to produce a part with qualities conforming to the input specifications in Hold et al (col. 5, lines 24-27). The correcting of flash by reducing the injection stroke and the correcting of short shots by increasing the injection

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stroke are inherent cause and effects occurring in conventional injection molding machines. Hold et al. teach that shot volume is a process variable (col. 1, lines 17-20) and that the stroke of the screw is moved to the desired position for exactly the shot volume (col. 2, lines 4-6). The shot volume control described in col. 13, line 15-col. 14, line 34 teaches readjusting the screw recharge position so as to obtain the desired shot size, see col. 13, lines 57-62. Therefore, the inspecting of the molded parts defects, flashing and short shots, and the reducing or increasing the injection stroke based on the inspection would have been obvious in Hold et al. since this would occur during the automated inspection and changing of set points as described at col. 5, lines 12-36. The inspecting of part defects and changing the set point of the injection screw speed is taught at col. 9, line 60-col. 10, line 6. Hold et al. (col. 11, lines 1-36) discloses the changing of the injection velocity set point and thus the melt temperature so as to eliminate molded part failure. The reducing of the injection velocity in response to flashing and the increasing of injection velocity in response to short shots obviously would have been part of the changing of the melt temperature and screw velocity in response to the molded part failure determined from the part inspection since the relationship between velocity and temperature directly determines the mold part appearance and possible part failure. Hold et al. (col. 7, lines 25-46) discloses the use of subsystems including velocity range monitor, melt temperature control and shot volume control so as to monitor and readjust the process variable such that the ultimate molded parts are of a constant property. This teaches the step of using one subsystem and then another subsystem so as to reduce the defects in the molded part. Hillman

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teaches a computer interface for inputting set points for injection molding machines and adjusting these set points (col. 8, lines 28-32). The set points include shot size and injection velocity, see col. 8, lines 46-53, which are quickly and conveniently adjusted to improve performance, col. 10, lines 61-67. The performing of the other step after the one step is found to have substantially no further effect is taught by the control interface of Hillman wherein the adjustment of the set points is inputted and stored and used in the monitoring activity but the reference set points are entered again to match the new actual set point. Clearly, when operating the machine in Hold (col. 3, lines 33-57), the adjusting of the temperature and velocity is performed sequentially until the desired effect is obtained and then the shot size is adjusted sequentially to obtain the desired part.

5. As to claims 36 and 37, Hillman (col. 18, line 61-col. 19, line 9) teaches time interval subgroups for operating a input set point adjustment and the monitoring or graphing of response to determine further adjustment which would be at a time greater than the control response time. Employing time steps greater than the velocity control response time would have been obvious in Hold in view of the teaching of Hillman since the previous response to the adjustment must be judged before further adjustment of the set point is performed. The time steps being greater than 1.5 or 2 times the response time would have been obvious to a person of ordinary skill in the art since the time should allow time for injection molding system response leveling, and molding and determining any failures in the product.

Response to Arguments

6. Applicant's arguments filed March 17, 2005 have been fully considered but they are not persuasive.

7. Applicant argues that Hold et al. adjusts shot volume but that this is not combined with the inspecting of the part for defects and reducing the injection stroke in response to any flashing or increasing injection stroke in response to any short shots. However, the correcting of flash by reducing the injection stroke and the correcting of short shots by increasing the injection stroke are inherent cause and effects occurring in conventional injection molding machines and Hold et al. teach that shot volume is a process variable (col. 1, lines 17-20) and that the stroke of the screw is moved to the desired position for exactly the shot volume (col. 2, lines 4-6).

8. Applicant argues that Hold et al. fails to disclose the adjustment of injection velocity. However, Hold (col. 7, lines 25-46) discloses the readjustment of the process variable which include the velocity range monitor. This velocity range monitor is known to affect the amount of short shot or flash such as described in col. 9, lines 22-23. Also, Hold (col. 3, lines 33-57) teaches controlled adjusting of the temperature and velocity being performed sequentially until the desired effect is obtained and then the shot size is adjusted sequentially to obtain the desired part.

9. Controlling injection stroke and/or injection velocity are both known in the art as shown by Hold and/or Hillman. Also, Hold teaches that parts are inspected to determine defects and process variable are accordingly controlled. As to "setting-up",

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the changing of the set points taught by Hold or Hillman may be construed as "set-up" procedure in that the set points are changed to achieve a defect free (or at least defect minimized) product. That is by controlling the set points, in essence, you are continually "setting up" the machine.

10. Given that the variable are known control variables, the order to the steps (i.e. doing 2 and then 3, or 3 and then 2) is of little consequence. Both are known control variables and controlling one and then the other, or vice versa would have been obvious.

11. As to Hillman, col. 8, lines 28-45 describe the adjusting parameters and switching to different parameters. Hillman, col. 8, lines 46-53, describe shot size and injection velocity as being selectable parameters.

12. Applicant argues that the measuring of the velocity control response time is novel and not taught by Hillman. However, the response time of the velocity control being less than any time steps are required so that the previous response to the adjustment is judged before further adjustment of the set point is performed. The time steps being greater than 1.5 or 2 times the response time would have been obvious to a person of ordinary skill in the art since the time should allow time for injection molding system response leveling, and molding and determining any failures in the product.

13. The examiner suggests that applicant amend claim 1, lines 9 and 11 changing "if" to "when". The examiner notes that claim 1 was amended on April 1, 2003 so as to clearly state that both steps (2) and (3) will be carried out at least once (see remarks

bottom of page 7 to page 8, line 2 of the amendment filed April 1, 2003). However, the use of the term "when" is a more clear indication that both steps (2) and (3) occur.

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill L. Heitbrink whose telephone number is (571) 272-1199. The examiner can normally be reached on Monday-Friday 9 am -2 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaiani can be reached on (571) 272-1196. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jill L. Heitbrink
Primary Examiner
Art Unit 1732

jlh